MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR AND LAND PROTECTION DIVISION
ENVIRONMENTAL SERVICES PROGRAM
Standard Operating Procedures

SOP #: MDNR-FSS-211 EFFECTIVE DATE: January 10, 2002

SOP TITLE: Quality Assurance Field Auditing Procedures

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SUMMARY OF REVISIONS: Some minor changes were made throughout the document. The numeric rating system was removed from Appendix A. Appendix B was added for conducting audits of water quality monitoring staff located in regional offices.

APPLICABILITY: The procedures described in this SOP are applicable to ESP FSS and WQMS staff who are responsible for conducting Quality Assurance field audits.

DISTRIBUTION: MoDNR Intranet
ESP FSS Section Chief
ESP SOP Coordinator
ESP WQMS Section Chief

RECERTIFICATION RECORD:

Date Reviewed				
Initials				

1.0 SCOPE AND APPLICABILITY

The Environmental Services Program (ESP) is committed to conducting field investigations that provide high quality environmental data that are both verifiable and defensible. The ESP has established written Standard Operating Procedures (SOP) that should be followed by field personnel when conducting their field investigations. In addition to SOPs, there are other types of documents that may provide guidance for field staff when planning and conducting a field investigation. Depending upon the type of investigation being conducted, additional guidance documents may include one or more of the following: Quality Assurance Project Plan (QAPP), sampling plan, work plan, Health and Safety Plan (HASP), sampling memorandum, scope of work. Field staff must be familiar with all of the guidance documents that may be applicable to their particular investigation and should make every effort to comply with the requirements specified within those documents. To ensure that all ESP Field Services Section (FSS) staff who conduct field investigations and all ESP Water Quality Monitoring Section (WQMS) staff who collect water chemistry data are following established procedures and guidelines, Quality Assurance Field Audits are periodically conducted by an experienced ESP field staff auditor. The goal is to conduct an annual audit on each FSS and WQMS staff member described above. WQMS field personnel who conduct biological monitoring are not covered under this SOP. ESP Environmental Emergency Response (EER) staff that conduct sampling at EER incidents shall also be audited on a periodic basis. The goal is to conduct an audit on each member of the EER staff once every two years. This SOP provides guidance for the auditor who is conducting a Quality Assurance Field Audit.

The ESP WQMS has staff who conduct Quality Assurance Field Audits on divisional regional office field staff who collect water chemistry data. While all of the procedures specified in this SOP may not be applicable, the WQMS auditor should follow this SOP as guidance when conducting audits on regional office staff.

2.0 SUMMARY OF METHOD

2.1 Appendix A is the *Quality Assurance (QA) Audit Checklist For Field Personnel* that shall be used by the ESP auditor when conducting an audit of any member of the ESP field staff, including FSS, WQMS, and EER personnel. While the checklist was developed for use in conducting audits at Superfund sites, most of the items on the checklist are applicable to other types of ESP field investigations, including RCRA sites, leaking petroleum tank sites, water quality monitoring sites, and EER incidents. Appendix B is the *Quality Assurance (QA) Audit Checklist For Regional Office Field Personnel* that shall be used by the WQMS auditor when conducting field audits at the regional offices.

2.2 In order to complete the appropriate audit checklist (Appendix A or B), the auditor shall observe the subject of the audit while in the field conducting the field investigation. The auditor may also interview the subject of the audit and ask relevant questions regarding the sampling procedures that are being used. As part of the audit, the auditor shall review pertinent documents such as SOPs, QAPPs, HASPs and sampling plans in order to

become more familiar with the specific field investigation that is being conducted. The auditor shall determine if the subject of the audit is following established Standard Operating Procedures and conducting the field investigation in a manner consistent with any other guidance documents that may apply (e.g., QAPP). The auditor shall document the findings of the audit in a written report that shall be kept on file at the ESP. Copies of the written report shall be provided to the subject of the audit and his/her supervisor.

3.0 HEALTH AND SAFETY REQUIREMENTS

Most field activities will be covered by a site specific HASP that is usually written by the ESP staff member in charge of conducting the field work. If there is a site specific HASP, then the auditor should review and comply with the requirements like any other site worker. If there is no site specific HASP, then Section 2 of the Hazardous Substances Emergency Response Plan contains general health and safety guidance that should be followed while conducting field activities.

4.0 PERSONNEL QUALIFICATIONS

4.1 Any person who conducts a Quality Assurance Field Audit must have a thorough working knowledge of the activities and procedures that are being audited. An auditor must also be unbiased and should be neither a direct subordinate nor a direct supervisor of the subject(s) of the audit.

4.2 Any person who conducts a Quality Assurance Field Audit should have a minimum of five (5) years field experience with the ESP and should be at a level of Environmental Specialist III or higher.

5.0 PROCEDURE

5.1 Depending upon the type of audit being conducted (i.e., ESP staff versus regional office staff) the auditor shall use the appropriate audit checklist (either Appendix A or Appendix B) to document the audit activities. Both checklists are similar in content and address the five general areas of interest described below.

5.1.1 Review of the Sampling Plan/Work Request

The level of detail written into a sampling plan or work request is dependant upon the particular type of field investigation being conducted, the scope of the investigation, and the specific requirements of any applicable QAPPs. For example, a sampling plan that is written for a Superfund site investigation is considerably more detailed than a scope of work plan written for a leaking petroleum storage tank site investigation. The auditor must be aware of the different requirements that may be specified in guidance documents, such as

QAPPs, and review and evaluate each type of written plan for content and completeness taking into consideration the type of investigation being conducted.

5.1.2 Review of Pre-Field Preparations

All field investigations require some preparations prior to conducting the actual field activities. Depending upon the scope of the investigation, pre-field preparations may be minimal or may be very extensive and time-consuming. The auditor must evaluate the preparations made by the field investigator and determine whether those pre-field preparations were effective, complete, and facilitated the overall investigation. The auditor will need to assess whether or not the field investigator followed all applicable SOPs and other guidance when preparing for the field investigation.

5.1.3 Review of Field Activities

The auditor will observe and evaluate all aspects of the actual field investigation, including logistics, equipment selection and operation, sample management, sample collection, field measurements, and record keeping to ensure that all applicable SOPs and guidance documents are followed correctly.

The auditor should maintain a relatively passive role in the field investigation, making observations and evaluating the observed activities through completion of the audit checklist. However, if a significant activity or condition is observed that would adversely affect the quality and usability of the data, then the auditor has the responsibility and authority to actively step in and issue a "stop work" order. The auditor should explain to the field personnel why the "stop work" order was issued and attempt to remedy the problem so the field investigation can continue. The specific activity or condition that led to the "stop work" order will be explained in the written audit report.

5.1.4 Post Field Activities

Equipment handling at the conclusion of the investigation will be assessed by the auditor to ensure that proper decontamination procedures are followed and that disposable contaminated equipment and investigation derived wastes are disposed of properly. Sample handling procedures, including storage, transportation, and transfer to the laboratory, will be evaluated to ensure that sample integrity is maintained and standard Chain-of-Custody protocol is followed.

5.1.5 Data Assessment

In most instances, the subject of the audit will write a final report of the field investigation. The auditor will review the final written sampling report to

determine if the report accurately describes the field activities that took place. The analytical results shall also be reviewed to look for any discrepancies or potential problems that may affect the validity or quality of the environmental data obtained from the field investigation.

5.2 The Quality Assurance Field Audit Report

The auditor shall write a Quality Assurance Field Audit Report within thirty (30) days after receiving a copy of the final written sampling report. The Quality Assurance Field Audit Report will include an introduction and background section explaining the purpose of the audit, a discussion of the auditing procedures, findings and observations made during the audit, and a section on corrective actions that are recommended to the subject of the audit that should help improve field investigation techniques.

Once completed, the Quality Assurance Field Audit Report will first be submitted to the subject of the audit for review. The subject of the audit is then required to submit a written response to the auditor, in the form of a memorandum, that states the audit report has been reviewed and specifically addresses any corrective actions recommended in the audit report. The response should state the specific actions that will be taken to follow up on the recommendations made. If there exists any disagreement regarding the recommendations, then that should be stated as well. The subject of the audit has thirty (30) days to submit his or her written response. Once the written response has been received by the auditor it will be attached as an appendix to the Quality Assurance Field Audit Report.

For Quality Assurance Field Audit Reports written for ESP field staff, the original final report will be filed at the ESP and copies will be distributed to the following: subject of the audit, the subject's direct supervisor, the subject's Section Chief, and the divisional Quality Assurance Manager. For Quality Assurance Field Audit Reports written for regional office water quality staff, the original final report will be filed at the ESP and copies will be distributed to the following: subject of the audit, the subject's Regional Director, the Deputy Divisional Director, and the divisional Quality Assurance Manager.

APPENDIX A

QUALITY ASSURANCE (QA) AUDIT CHECKLIST FOR FIELD PERSONNEL

QUALITY ASSURANCE (QA) AUDIT CHECKLIST FOR FIELD PERSONNEL

Subject of Audit: _____

Title/Affiliation: _____

Name of Auditor: _____

The following QA Audit Checklist was completed by the auditor based upon observations made in the field and a thorough review of the paperwork associated with the field or sampling investigation. Observations made by the QA field auditor and responses to the checklist questions are shown in *italics*. Any recommendations made by the QA field auditor are shown in **bold** print.

REVIEW OF THE SAMPLING PLAN

The sampling/project plan is an important tool for providing documentation of proposed activities. The following are questions designed to establish that at a minimum the plan is adequate to ensure the collection of useful data**:**

1. Are the objectives of the plan clearly explained?

2. Does the plan provide historic background information concerning the site?

3. Are the proposed sampling locations described?

4. Is an adequate rationale provided for selecting the sampling locations and will they meet the objectives of the sampling plan?

5. Are the sampling methods described and are they adequate to provide usable data?

6. Does the plan address the use of QA practices?

7. Does the plan address accessibility of the sample media (e.g., how will liquid from tanks or sludges from waste lagoons be obtained)?

8. Is the disposal of investigation derived wastes (IDW) addressed in the plan?

9. Are sample handling procedures discussed, including chain-of-custody, packaging, and transportation procedures?

10. Were data reporting procedures included in the plan?

11. Was an adequate Health & Safety Plan (HASP) developed, including monitoring, routine safety procedures, and emergency procedures?

12. Were decontamination procedures addressed?

13. Was the sampling plan formally approved?

REVIEW OF PRE-FIELD PREPARATIONS

The pre-field preparations conducted for field activities are a vital part of any sampling investigation. Those activities should include, but are not limited to, the following elements:

1. Was equipment properly cleaned, charged, and/or calibrated?

2. Were sample containers of the appropriate kind, and were they certified clean?

3. Were preservatives, coolers, and all other support equipment requirements met?

4. Were the proper field documents included?

5. Were safety and health considerations made and equipment included?

6. Were preparations made for the collection of an appropriate number and type of QA samples (e.g. blanks, duplicates)?

7. Were provisions made for field documentation?

REVIEW OF FIELD ACTIVITIES

Field activities can vary tremendously from site to site. However, some of the following general observations may be applicable

1. Were proper notifications made with all appropriate personnel, including underground utilities if subsurface sampling was conducted?

2. Was a safety briefing conducted prior to field activities and did all members of the field team understand and sign the site HASP?

3. Was the HASP placed in a location on-site where it could easily be observed?

4. Was the HASP followed by field sampling personnel (e.g., proper personal protective gear used)?

5. Were weather conditions and other physical on-site hazards taken into account that may have affected the sampling team?

6. Were field instruments calibrated according to manufacturers' specifications, and were calibration procedures documented in field notes?

7. Was the proper sampling equipment chosen, and was it constructed of materials appropriate for the job?

8. Were the sampling methods used appropriate and in accordance with applicable SOPs?

9. Were samples collected in sufficient numbers to meet the requirements of the sampling plan?

10. Was a field notebook used to record sampling data, observations, and other pertinent information?

11. Were photographs taken to document the site?

12. Was a suitable work area established for processing forms and packaging samples?

13. Were sample labels properly filled out at the time of collection?

14. Were all variances from the sampling plan documented, and were they logical deviations?

15. Were samples collected in proper order (least contaminated to most contaminated)?

16. Were the samples properly preserved in accordance with ESP standard protocol?

17. Were clean disposable gloves worn during sample collection, and were they changed between each sample?

18. Were proper sample containers used in accordance with ESP standard protocol?

19. Was any equipment decontaminated in the field?

20. If field decontamination was done, were equipment rinsate blanks collected to document the effectiveness of the decontamination procedures?

21. Were any background, replicate, trip blanks, or other QA/QC samples collected?

22. Was custody of the samples properly maintained at all times?

23. Were Field Sheet and Chain-of-Custody Records properly completed for each sample?

24. Were the samples properly stored and transported?

25. Were contaminated equipment, clothing, and investigation derived wastes properly managed and kept separated from sample containers?

POST FIELD ACTIVITIES

Activities following a field investigation can be as important as the field work itself. The following items were monitored:

1. Were the samples transferred to the laboratory properly and in a timely manner?

2. Was the transfer accurately documented to show an unbroken chain-of-custody record?

3. Was the contaminated sampling equipment properly decontaminated or disposed?

DATA ASSESSMENT

To help determine if the Data Quality Objectives (DQO) have been properly achieved, an evaluation was made to assess the value of the data. The following questions were designed to help in the assessment of the data:

1. Were any discrepancies in field procedures or sampling methods observed that may invalidate (partially or completely) the data?

2. Were all trip, field and rinsate blanks free of contamination? If not, how might the results affect the overall data quality?

3. If any background samples were collected, how might the background sample results affect data assessment?

4. Did the final written report accurately describe the field investigation activities?

5. If there were any problems noted in the field QA/QC sample data (e.g. contaminated blanks or background samples), were they explained or discussed in the written report?

GROUNDWATER MONITORING WELL SAMPLING

Whenever the field investigation includes the collection of groundwater samples from monitoring wells, then the auditor should also complete this section of the QA Field Audit.

1. Were the wells clearly marked for identification?

2. Were the wells locked and secured upon arrival?

3. Were the size and construction material of the well casings documented?

4. If volatile organic contaminants were a concern, was the well head space tested with a PID or other organic vapor analyzer immediately upon removal of the well cap?

5. Were any measures taken to detect the presence of either light phase or dense phase non-aqueous liquids (i.e. immiscible floaters or sinkers)?

6. Were total well depth and depth to static water level measured prior to purging?

7. Was the water level measuring device properly decontaminated between wells?

8. Was the well properly purged or evacuated prior to sampling?

9. Was the purge water handled and disposed of properly?

10. Was the evacuation/sampling equipment dedicated? If not, was it properly decontaminated between wells to eliminate cross-contamination?

11. Was the evacuation/sampling equipment proper for the job and was it constructed of appropriate materials (i.e. won't absorb or desorb contaminants)?

12. Were the physical properties of the groundwater samples documented in a field notebook (e.g. color, turbidity, or any field parameters measured)?

13. Were there any QA/QC samples collected?

14. If samples were collected for volatile organics, were the samples collected in a manner to minimize agitation, aeration, or volatilization?

15. Were all samples collected in proper containers, preserved in accordance with accepted SOPs, properly labelled, and placed on ice as soon as possible after collection?

16. Were the wells locked and secured upon leaving the site?

17. Were there any observations made regarding field procedures, not otherwise noted above, that could potentially result in compromised data?

APPENDIX B

QUALITY ASSURANCE (QA) AUDIT CHECKLIST FOR REGIONAL OFFICE FIELD PERSONNEL

QUALITY ASSURANCE (QA) AUDIT CHECKLIST FOR REGIONAL OFFICE FIELD PERSONNEL

Name of Field Personnel (#1):_____

Title/Affiliation:_____

Name of Field Personnel (#2):_____

Title/Affiliation:_____

Name of Auditor:_____

Title/Affiliation:_____

Date of Audit:_____

This Quality Assurance (QA) Audit uses the knowledge of ESP Standard Operating Procedures (SOPs) and Quality Assurance Project Plan(s) to reflect the degree to which the subject of the audit followed standard field investigation/sampling protocol(s).

Ratings: **Y** = Yes **N** = No **NA** = Not Applicable

All comments by the auditor are in *italic* type

Y/N/NA

PART I: REVIEW OF THE SAMPLING PLAN

The sampling plan is important for organizing and documenting proposed sampling activities. The following are questions to establish that, at a minimum, the plan and initial preparation are adequate to ensure the collection of useful data:

Y/N/NA

1. Are the objectives of the sampling plan clearly explained? ☐☐☐

2. Does the plan provide the investigator with sufficient background information to adequately conduct the sampling event? ☐☐☐

3. Are the proposed sampling locations described? ☐☐☐

4. Is an adequate rationale provided for selecting the sampling locations and will they meet the objectives of the planned sampling event? ☐☐☐

5. Are the sampling methods understood and are they adequate to provide usable data? ☐☐☐

Review of Pre-Field Preparations

The pre-field preparations conducted for field activities are a vital part of any sampling investigation. Those activities should include, but are not limited to, the following elements:

1. Was an equipment/supply checklist available and used to help insure that all items needed for the sampling event are available? ☐☐☐

2. Were field meters stored and maintained properly (refer to Part II)? ☐☐☐

3. Did the meter checks using certified standards fall within acceptable limits for each field analysis? ☐☐☐

4. Were preservatives, coolers, and all other support equipment requirements met? ☐☐☐

5. Were the proper field documents included to aid in sample collection? ☐☐☐

Y/N/NA

6. Were safety and health considerations made and equipment included? ☐☐☐

7. Were preparations made for the collection of an appropriate number and type of QA samples (e.g. blanks, duplicates)? ☐☐☐

8. Were provisions made for field cleaning, if needed? ☐☐☐

Review of Field Activities

Field activities can vary tremendously from site to site. However, some of the following general observations may be applicable.

1. Were proper notifications made with all appropriate personnel? ☐☐☐

2. Were appropriate safety measures considered prior to the sampling event? ☐☐☐

3. Were weather conditions taken into account or other physical hazards that may affect the sampling? ☐☐☐

4. Were field instruments calibrated according to manufacturers' specifications? ☐☐☐

5. Was the proper sampling equipment chosen (i.e., automatic wastewater sampler, etc.) and was it constructed of the appropriate material, clean and in working order? ☐☐☐

6. Were sampling methods appropriate according to applicable SOPs? ☐☐☐

7. If an automatic wastewater sampler was used, were samples iced during the compositing process? ☐☐☐

	Y/N/NA
8. Were samples collected in sufficient numbers to meet the requirements of the sampling plan?	☐☐☐
9. Was a field notebook used to record pertinent sample data and observations?	☐☐☐
10. Were field measurements made on a split portion of the sample rather than a container that will be analyzed for other parameters?	☐☐☐
11. Were sample labels properly filled out at the time of collection?	☐☐☐
12. Were all variances from the plans documented and were they logical solutions?	☐☐☐
13. Were samples collected in proper order (least contaminated to most contaminated)?	☐☐☐
14. Were samples containerized and preserved properly?	☐☐☐
15. Are proper holding times adhered to?	☐☐☐
16. Were clean disposable gloves worn and were they changed between each sample?	☐☐☐
17. Was any equipment cleaned in the field?	☐☐☐
18. Were equipment rinsate blanks collected to document the effectiveness of the cleaning procedures?	☐☐☐
19. Were background, duplicate, trip blanks, or other QC samples collected?	☐☐☐
20. Was a duplicate collected after each tenth sample or one for each trip if fewer than ten samples were collected?	☐☐☐
21. Was custody of the samples properly maintained?	☐☐☐

Y/N/NA

22. Were Field Sheet and Chain-of-Custody Records properly completed for each sample? ☐☐☐

23. Were the samples properly stored and transported? ☐☐☐

24. Were contaminated equipment, clothing, and investigation derived wastes properly handled, and kept away from sample containers? ☐☐☐

Post Field Activities

Activities following a field investigation can be as important as the investigation itself. The following items should be monitored:

1. Were the samples transferred properly and in a timely manner? ☐☐☐

2. Was the transfer properly documented to show an unbroken Chain-of-Custody? ☐☐☐

3. Was the contaminated equipment properly decontaminated or disposed? ☐☐☐

Data Assessment

To help determine if the sampling objectives have been properly achieved, an evaluation was made to assess the value of the data. The following questions are designed to help in the assessment of the data:

1. Were field procedures and sampling methods conducted in a manner that will insure the validity of the data? ☐☐☐

2. Were all field and equipment blanks free of contamination? If not, how might they affect the overall data quality? ☐☐☐

3. Were samples of sufficient quantity and quality to meet the sampling objectives and allow for sound environmental decisions? ☐☐☐

Y/N/NA

PART II: FIELD METER STORAGE, MAINTENANCE, AND USE

To be able to obtain reliable and defensible environmental data, it is extremely important that field personnel are knowledgeable of the field equipment being used. The following field meters and field equipment were observed and/or checked for accuracy against a known certified standard solution.

pH Meter and Measurement Y/N/NA

1. Are all pH electrodes stored properly and maintained (i.e., in acidic buffer or commercial probe storage solution)? ☐☐☐

2. Are all pH buffer solutions adequate (not out of date or contaminated)? ☐☐☐

3. Are all pH meters and electrodes clean and in good repair (good batteries, KCl in reference electrode, etc.)? ☐☐☐

4. Are all pH meters capable of 2-point calibration? ☐☐☐

5. Do all pH meters compensate for temperature automatically? ☐☐☐

6. Are backup meters available and taken into the field? ☐☐☐

7. Are pH electrodes rinsed with deionized water and blotted before each measurement? ☐☐☐

8. Are pH meters calibrated before each use, with pH-7 buffer and another buffer selected to bracket the sample? ☐☐☐
   Are pH meters rechecked or checked with a third buffer prior to sample measurement? ☐☐☐

9. Is fresh buffer poured into a small beaker for each calibration and then discarded after use? ☐☐☐

10. Is the sample properly stirred during analysis? ☐☐☐

Y/N/NA

11. Is the pH meter read and recorded correctly? ☐☐☐

Dissolved Oxygen Meter and Measurement

1. Are D.O. probes stored and maintained properly? ☐☐☐
2. Are probe membranes changed regularly or when the readings become erratic? ☐☐☐
3. Are D.O. probes calibrated against the Winkler titration method or Saturated Air Method? ☐☐☐
4. Are extra probe membranes and fill solution available and taken into the field? ☐☐☐
5. Does the sampler know how to change the probe membrane if needed? ☐☐☐
6. Are the membranes on the D.O. probes properly installed and free of air bubbles? ☐☐☐
7. Is adequate time allowed for the D.O. meters to warm up (20-30 minutes) prior to use? ☐☐☐
8. Are the meters properly calibrated for the “mechanical zero”, “red line” and “zero” prior to use? ☐☐☐
9. Is the D.O. probe properly stirred during the sample measurement? ☐☐☐
10. Is the D.O. meter properly read and the data properly recorded for each sample? ☐☐☐

Specific Conductivity Meter and Measurements

1. Is the conductivity meter stored and maintained properly? ☐☐☐
2. Are calibration standards available and used to calibrate meters? ☐☐☐

Y/N/NA

3. Does the meter automatically compensate to 25 ˚C? ☐☐☐

4. Are readings measured and recorded properly using the correct units? ☐☐☐

Temperature Measurements

1. Are temperature measurements performed with a thermometer traceable to a NIST calibrated thermometer? ☐☐☐

2. If temperature measurements are performed using a field meter thermister, has it been calibrated against a thermometer traceable to an NIST thermometer? ☐☐☐

3. Is the thermometer placed in the sample and allowed to stabilize adequately prior to taking a reading? ☐☐☐

4. Is the temperature reading obtained while the thermometer remains in the sample solution? ☐☐☐

ISCO™ Sampler Operation and Maintenance

1. Is the field personnel familiar with the operation and maintenance of the sampler? ☐☐☐

2. Are the tubing, sample container and strainer cleaned of debris on a routine basis? ☐☐☐

3. Is the battery charged prior to use? ☐☐☐

4. Is the sampler set at an adequate location to collect a representative sample? ☐☐☐

5. Is the sampler set in a secure area or secured to prevent tampering? ☐☐☐

6. Is the sampler programmed appropriately to collect a representative sample? ☐☐☐

Y/N/NA

7. Is the strainer suspended in the discharge stream or placed in such a way to prevent the up-take of excessive solids/algae that may not be representative of the discharge? ☐☐☐

8. Are the tubing and collection jug rinsed with effluent water prior to sample collection? ☐☐☐

9. Is the sample collection jug kept cool with ice during the sampling event? ☐☐☐

10. Upon sampler retrieval, is the sampler checked for tampering or sample collection error messages? ☐☐☐

11. Is the sample collection jug thoroughly mixed prior to filling sample containers? ☐☐☐

12. When collecting a split sample, is the sample distributed in such a way that each sample container is representative of the actual sample? ☐☐☐

13. Are sample containers preserved and labeled immediately following collection? ☐☐☐

Established Field Meter QC Program

1. Does the region have an established field meter QC program? ☐☐☐

2. Have the regional field personnel attended the annual regional office training provided by the ESP? ☐☐☐

Quality Control Checks of Field Meters

Parameters	Meter ID	R.O. Staff Certified Std. Results	Certified Std. True Value	Acceptable Limits	Lot #
pH (Units)					
Conductivity (µS/cm)					
Dissolved Oxygen (mg/L)					*
Thermometer					**

The shaded values are those outside of the acceptable limits.

* *Indicates comparisons were made against the QA Field Auditor's meter*
** *Indicates comparisons were made against the QA Field Auditor's calibrated thermometer*
*** *Indicates the equipment was malfunctioning or broken at the time of the audit.*

Describe the equipment used for field measurements (type, manufacturer, model, etc.).

pH:
DO:
Conductivity:
Temperature:

Sample Descriptions and Chain-of-Custody

Date:_____

Sample Containers, Preservatives, and Holding Times

Sample Number	Sample Type	Parameter	Container	Preservatives	Maximum Holding Time	Acceptable	Comments